

Listing of Claims

1. (Previously Presented) A removable aerosolizing element for use in an aerosol delivery device for aerosolizing an agent, comprising:
 - a body having an exterior surface and a chamber defined therein;
 - an inlet defined in the body for connection to a source of agent, the inlet being in fluidic communication with the chamber;
 - agent releasing orifices defined in the body and in communication with the chamber;
 - a movable element having an inner surface that defines a portion of the chamber, the movable element being capable of moving in response to an external force applied to the exterior surface, wherein the external force causes the movable element to move toward the agent releasing orifices to increase pressure in the chamber and cause agent in the chamber to be expelled through the orifices; and
 - projections disposed in the chamber and maintaining a minimum spacing between the moveable element and the orifices, the projections being configured to contact the inner surface of the moveable element and an opposing inner surface of the chamber defining said orifices to maintain the minimum spacing when the external force is applied to the exterior surface.
2. (Original) The aerosolizing element of claim 1, wherein the movable portion is deformable, and the movable portion deforms under the external force to increase pressure in the chamber, thereby expelling agent from the chamber through the orifices.
3. (Original) The aerosolizing element of claim 1, wherein the movable element comprises a flexible diaphragm.
4. (Original) The aerosolizing element of claim 1, wherein the chamber includes an internal passageway portion in communication with the inlet and a main chamber portion generally opposite the orifices.
5. (Original) The aerosolizing element of claim 1, wherein the chamber is filled with a predetermined quantity of agent and the inlet is sealed.

6. (Previously Presented) The aerosolizing element of claim 1, further comprising a cover positioned over the inlet to reduce entry of undesired material into the chamber.

7. (Original) The aerosolizing element of claim 1, wherein the body comprises an orifice plate partially bounding the chamber generally opposite the movable element, the orifice plate defining the orifices.

8. (Original) The aerosolizing agent of claim 7, wherein the orifice plate comprises a metal foil.

9. (Original) The aerosolizing element of claim 1, wherein the chamber can be filled with agent via gravity feed from the inlet.

10. (Original) The aerosolizing element of claim 1, wherein the chamber can be filled with agent via capillary action.

11. (Previously Presented) The aerosolizing element of claim 1, wherein the projections are dimensioned to contact the inner surface of the moveable element and the opposing inner surface of the chamber when the external force is not applied to the moveable element.

12. (Original) The aerosolizing element of claim 1, wherein the external force applied to the movable member comprises vibratory oscillations causing the movable member to reciprocate and alternately increase pressure in the chamber to expel agent and decrease pressure to draw additional agent into the chamber.

13. (Original) The aerosolizing element of claim 1, wherein the element is pre-filled with at least a first component and a second component of an agent to be aerosolized that are mixed within the element prior to aerosolization.

14. (Original) The aerosolizing element of claim 13, wherein body comprises a first reservoir pre-filled with the first component of the agent, a second reservoir pre-filled with the second component of the agent, and a separation element disposed between the first and second reservoirs and separating the first component from the second component, the separation element being movable into the first reservoir to allow mixing of the first and second components.

15. (Original) The aerosolizing element of claim 1, wherein the body includes a needle portion shaped to receive a vial of agent and wherein an end of the needle defines the inlet.

16. (Original) The aerosolizing element of claim 1, wherein the element is disposable after use.

17. (Original) The aerosolizing element of claim 1, wherein one side of the body is adapted for direct attachment to a patient interface for conveying aerosolized agent from the orifices towards a patient.

18. (Original) The aerosolizing element of claim 1, wherein the chamber includes an air vent separate from the inlet.

19. (Original) The aerosolizing element of claim 1, wherein:
the aerosol delivery device comprises an actuator that applies the external force to the movable element to cause the agent to be expelled through the orifices; and
the body is configured to prevent the agent from contacting the actuator.

20. (Original) The aerosolizing element of claim 1, further comprising at least one airflow passageway extending through the body such that air flowing through the passageway can carry the expelled agent away from the element.

21. (Original) The aerosolizing element of claim 20, wherein the airflow passageway comprises an inlet defined in one side of the body and an outlet defined in an opposing side of the body, the outlet being offset from the inlet.

22. (Original) The aerosolizing element of claim 1, wherein the body comprises first and second reflective surfaces positioned on opposite sides of the orifices such that a light beam passing through the element is reflected by the first reflective surface to extend in front of the orifices and onto the second reflective surface, which reflects the light beam back through the element.

23. (Original) The aerosolizing element of claim 22, wherein the body comprises a transparent material that transmits the light beam.

24. (Previously Presented) The aerosolizing element of claim 3, wherein the projections are on the flexible diaphragm.

25. (Original) The aerosolizing element of claim 3, wherein the body comprises an opening adjacent the flexible diaphragm, the opening being adapted to receive an actuator for coupling to the flexible diaphragm and applying the external force.

26.-58. (Canceled)

59. (Previously Presented) The aerosolizing element of claim 1, wherein the projections are formed on the moveable element.

60. (Previously Presented) The aerosolizing element of claim 1, wherein the projections have a height of about 0.1 mm equal to the minimum spacing of the chamber.

61. (Previously Presented) The aerosolizing element of claim 1, wherein the orifices are formed by laser drilling.

62. (Previously Presented) The aerosolizing element of claim 1, wherein the projections are configured to allow agent to flow through the chamber when the projections are in contact with the inner surface of the movable element and the opposing inner surface of the chamber.

63. (Previously Presented) The aerosolizing element of claim 1, in combination with the aerosol delivery device, the aerosol delivery device comprising an ultrasonic horn coupled to the moveable element and comprising an actuator and a motion transmitting member coupling the actuator to the moveable element for transferring vibratory motion of the actuator to the moveable element.